How common are medication errors and adverse drug events in mental health hospitals? A systematic review

Ghadah Alshehri, PhD student
Dr. Richard Keers
Prof. Darren Ashcroft

Centre for Pharmacoepidemiology and Drug Safety
Outline

1. Background
2. Study aim
3. Method
4. Result
5. Conclusion
6. Future work
Medication errors in mental healthcare: a systematic review

Background

Centre for Pharmacoepidemiology and Drug Safety

• Medication errors (ME) and adverse drug events (ADE) are serious public health problem.
• Vulnerabilities and risks of patient with mental illness created challenges to safe medication use.
• 21% of ADEs causing hospital admission were associated with psychotropic use (Senst BL 2001)
• Outdated
• Important limitations

Patient Safety

What Do We Know About Medication Errors in Inpatient Psychiatry?

Providing care to patients always involves the possibility of causing unintended harms. Some types of unintended harms, such as hospital-acquired infections and adverse drug events (ADEs), are reported as causing alarming rates of patient injury and death, as well as substantial and potentially preventable expenditures of health care dollars. For example, the Centers for Disease Control and Prevention has reported that approximately 2 million patients in the United States acquire infections each year while hospitalized, resulting in 95,000 deaths and an annual cost of $4.5 billion. Cost estimates of medical errors are similarly staggering. The Institute of Medicine (IOM) report To Err Is Human estimated that preventable health care-related injuries cost from $17 to $290 billion annually, and half of these costs are direct health care costs. In a study of medical errors in a large teaching hospital, the annual cost of errors was estimated at $5 million. The same study estimated that the total annual cost of errors in all acute care facilities was $35 billion. The enormity of such personal and financial costs is an impetus to better understand the impact of medical errors on all patients, including hospitalized psychiatric patients.

Like hospital-acquired infections, ADEs have been increasingly implicated as a cause of substantial morbidity and mortality. Historically, psychiatrists have been successful in recognizing one category of ADE resulting from the use of psychopharmacologic agents—adverse drug reactions (ADRs). Examples of ADs include the following:
- Movement disorders such as acute dystonia, drug-induced parkinsonism, and tardive dyskinesia;
- The neuroleptic malignant syndrome;

Article-at-a-Glance

Background: Adverse drug events (ADEs) have been implicated as a cause of substantial morbidity and mortality. Psychiatrists have successfully characterized one category of ADE—adverse drug reactions (ADRs), which have been studied from a medication-specific psychopharmacologic frame of reference. The literature on ADRs, both preventable and nonpreventable, was reviewed within the broader patient safety framework.

Methods: English-language studies involving ADRs and medication errors in psychiatry for 1995 through 2000 were identified on MEDLINE and by using a hand search of bibliographies.

Results: Few reports on the incidence and characteristics of medication errors in psychiatric hospitals could be found. Psychiatrists may not be sufficiently aware of the harms caused by errors, methodological issues regarding error detection, the validity of reported medication error rates, and the challenge of creating a non-punitive error-reporting culture.

Prevention strategies: Application of a systems-oriented approach to ADE reduction and the promotion of a nonpunitive culture are essential. Clinical and pharmacy staff could monitor the literature for published reports of preventable adverse events and review those reports in multidisciplinary team meetings.

Conclusions: Psychiatry would benefit from learning about the terminology used in describing medication errors and ADRs. Relatively few data are available regarding the frequency and consequences of medication errors in psychiatry; more research is needed.
Study aim

To critically appraise the literature related to the frequency, nature and severity of medication errors (MEs) and adverse drug events (ADEs) in mental health hospitals
Method

Search strategy

• All language literature search
• 10 electronic databases
• 1999 – October 2016
• Reference list of included studies/ excluded review
Inclusion criteria

1. Rate of ME and ADE in mental health hospitals
2. Rate of unintentional medication discrepancy at care interface
3. Conference abstract

Exclusion criteria

1. Utilised incident reports or estimated denominator
2. Rate for a single drug, single drug class and/or disease
3. Rate of ME subtypes
4. Rate of potentially inappropriate prescribing
Quality assessment

Aim/objectives

Outcome definition

Error category

Study setting

Denominator

collection method

Study limitation

Validity & reliability measure
Data synthesis

The included studies were heterogeneous

Findings were summarised narratively
Result

(Search strategy and review process)

50% of studies were based in UK
Studies Outcome

- Overall MEs (n=6), ADEs (n=2)
- Prescribing error (n=11)
- Unintentional discrepancy (n=1)
- Dispensing error (n=1)
- Administration error (n=6)
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<tr>
<th>Reference/year</th>
<th>Aim/objectives</th>
<th>ME/AD/E definition</th>
<th>Error categories specified</th>
<th>Error categories defined</th>
<th>Denominator defined</th>
<th>Data collection method described</th>
<th>Study setting described</th>
<th>Validity measure applied to confirm the occurrence of error</th>
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Adverse drug event

Overall medication error

Prescribing error

Unintentional discrepancy

Dispensing error

Administration error

- Rate: 10-42 per 1000 patient-days (n=2)
- 13-17% found to be preventable
- Severity: 66-71% significant, 28-31% serious, and 1.4-2% life threatening.
- Medication class: psychototropic (atypical antipsychotic)
• Rate: 6.3-116.1 per 1000 patient-days (n=3)

• Most commonly occurred in prescribing and administering stage

• Severity: 28-50% significant, 42-44% serious and 2.1-4.4% life threatening.

• Medication class: psychotropic (atypical antipsychotics)
• Rate: 4.5-6.3% of newly written or omitted prescription items (n = 3) and 2.2-39.3% of prescription checked (n=3)

• Type: drug omission /missing or incorrect dose prescribed

• Severity: 49-67% significant, 27-44% minor and 5.4-6.6% serious.

• Medication class: psychotropic
• Rate: 56% of patient admission
• Type: 77.2% drug omission and 7% wrong/unclear dose.
• Severity: 37.7% moderate and 62.3% minor.
• Medication class: 19.5% antidepressants and 13% antipsychotics.
• Rate: 5% of total opportunity of error

• Type: 50% dose omission and 22% incorrect labelling of medication

• Severity: 61% significant and 33% serious.

• Medication class: psychotropic (Atypical antipsychotic).
Adverse drug event

Overall medication error

Prescribing error

Unintentional discrepancy

Dispensing error

Administration error

• Rate: 3.3-48% opportunities for error

• Type: Wrong time errors and drug omissions

• Severity: 7.3-71% minor and 0.3-5% serious.

• Medication class: psychotropic vs. non-psychotropic agent
Conclusion

- Medication and adverse drug events are common in mental health hospitals.
- Psychototropic were associated with increased risk of MEs and ADEs.
- More study is needed for ADEs, DEs and unintentional discrepancy in mental health hospitals.
What's next!

Identify the burden of adverse drug events in UK mental health hospitals
Any question!

“All men make mistakes, but a good man yields when he knows his course is wrong, and repairs the evil. The only crime is pride.”

Sophocles, Antigone